Aging and Disability Services
Homecare Referral and Aide Time Tracking Systems
Fiscal Year 1998 TIIAP Application

EXECUTIVE SUMMARY

This project is intended for the Public Services primary application area and the Health secondary application area. Its goal is to use several innovative interactive information technologies to improve efficiency and quality of homecare services provided to low income elderly/disabled individuals in King County, Washington. The Homecare Referral System will use the Internet as the mode of information transmission to facilitate rapid, paperless referral between case management programs and homecare agencies.

The Homecare Aide Time Tracking System will use interactive voice response technologies, initiated and concluded telephonically by a worker from a client's home. Both systems will feed into an agency performance database that can be directly accessed by the grantee and several other key system players for performance-related decisions and to create a more efficient reporting and billing structure.

Anticipated project outcomes include more timely and efficient client referrals; reduced costs due to time saved in key administrative processes; improved client quality of service (through faster service initiation and more dependable service); increased accountability of contracted homecare workers and provider agencies, and increased satisfaction with service quality and efficiency by consumers, case managers, and other referring providers.

The project has national implications for improvement of services that are more and more preferred by consumers and relied on by policymakers and funders to support disabled individuals at home. It fits well with TIIAP priorities of using information technologies to extend valuable services to underserved individuals and warrants the $458,543 of federal support sought.

Table of Contents

(1) PROJECT PURPOSE

More than 4,500 low-income residents of King County, Washington have chronic illnesses or disabilities and rely primarily on homecare services as the cornerstone of their effort to remain at home, living independently as long as possible. The Medicaid-funded Personal Care Program gives them assistance with essential life functions such as bathing, dressing, eating, toileting, and managing medications.

A majority of homecare services are provided by a partnership of agencies responsible for funding, administering, authorizing, and delivering these services. As the local agent of the state's Medicaid and Aging departments, Aging and Disabilities Services (ADS) leads the King County partnership for assuring the adequacy of homecare services.

All too often, homecare services are not dependable enough to be the cornerstone of an independent living plan. Case managers, social workers, and others experience difficulty in providing service in a timely and efficient manner. To carry out its leadership role, ADS is actively searching for process improvements that will increase the quality and of efficiency of homecare in our community. We seek additional resources to do so through this grant proposal.

The Homecare Process

Staff of community-based health and human service organizations, as well as friends, family members, or elderly and disabled individuals themselves, become aware of someone's need for homecare and refer them to one of several case management programs for assessment. System case managers assess need and authorize provision of appropriate kinds and amounts of service. They refer to one of 14 contracted agencies that hire and administer a pool of workers to deliver the authorized service. ADS selects and contracts with these agencies, monitors agency performance, and processes invoices for timely reimbursement based on number of client hours served. ADS also directly administers one of the five system case management programs and contracts with three others.

Everyone involved in the partnership of accountable agencies—all those who refer for homecare services, and all those who receive service or are interested in the well-being of clients—expect service will be prompt and provided in a quality way. All want the services to be effective enough to allow the fragile individuals served to remain at home as long as possible. But several systemic problems affect service quality adversely, interfere with the appropriate and efficient use of resources, and threaten client independence.

Homecare workers typically live just above poverty. Homecare agencies all experience problems recruiting, managing, and retaining an unstable labor pool of semi-skilled workers, made all the more undependable in our community by a booming economy that beckons these workers into more lucrative occupations. Worker quality varies within and across agencies.

Frontline supervisors do not have all the necessary resources and tools to meet the challenges of dealing with this unstable workforce. Further, limited staff resources prevent ADS from tracking agency performance in a timely and thorough manner. We depend instead on anecdotal reports from case managers and annual field visits by our homecare contract monitor.

Specific Problems to be Addressed

1. Referral sources are unable to make "good" referrals; other than word-of-mouth, there is no practical way to know in advance which providers have the best current track record.
2. Making a referral is time-consuming and inefficient. Case managers must make multiple phone calls to various homecare agencies in search of a worker who can provide services on the schedule most beneficial to the client and family. The only way case management programs and agencies can share client information is through fax transmission of multi-page documents.
3. There is no feedback loop to let providers know promptly when clients will first be served (or even whether the referral is accepted).
4. Delays occur in service start-up because there is no available aide; or the client's situation is unstable and no aide well-qualified enough is available, so there is not a good "match."
5. Gaps in service occur due to "no-show" aides, aide turnover, illness, or vacations. Agencies sometimes delay in reporting such gaps to the client's case manager, presumably for fear the case will be transferred to another agency.
6. Clients receive fewer hours than they need and fewer than authorized.
7. Agencies don't get prompt feedback about poor performance.
8. Agencies experience difficulties in preparing invoices for prompt reimbursement and attendant cash flow problems that exacerbate workforce management and retention problems.

Goal and proposed solution

ADS is very interested in spearheading the development of basic, applied, interactive information technologies. We have prioritized applications both clients and providers will value because they reduce administrative costs and improve performance and service quality. ***Our goal for this project is to improve the efficiency and quality of in-home services by using these technologies.*** These are the major system components (and related objectives) we believe will move us toward achieving this goal:

Phase I (Homecare Referral System) will enable the five case management agencies, ADS, and the 14 homecare agencies to become an interactive network utilizing a distributed database infrastructure to:

- Develop and implement a Web-based data system for initiating and responding to homecare referrals. The system will allow rapid, paperless homecare referral to one or more of the homecare agencies which will respond promptly when a referral is received, agreeing to accept the referral or declining it if unable to meet the referred client's needs.
- Build a daily performance profile database that can be sorted by the case manager or ADS staff, or can be accessed by the homecare agency itself. This database will meet homecare system management and accountability requirements. It will identify which providers can respond promptly and which can meet special language needs or supply other needed special skills. The case manager will be able to use the database to increase referrals to the highest performing agencies. ADS staff can catch performance problems promptly by using the database.

The Homecare Referral System (HCR) will use the existing City of Seattle telecommunications infrastructure which includes a high speed transmission line to the Internet service provider. In addition, 120 of the 150 case managers who will use the HCR, and 10 of the 14 homecare

providers, already have desktop Internet access. Most important, there is widespread enthusiastic support for the HCR by case managers and homecare providers, because of the obvious potential for increased efficiencies for staff and quality for clients.

Phase II (Homecare Aide Time Tracking System) will:

- Develop and implement a homecare aide time tracking system initiated and concluded telephonically each time a worker arrives at a client's home. Its features include:
  - ⇒ notification of case managers by e-mail when actual service levels fall below clients' authorized service level; a case manager will also have the ability to check the database to determine if an aide is at the house at the scheduled time;
  - ⇒ inputs to the performance data base that allow monitoring by comparison of provided hours to authorized hours;
  - ⇒ customized reports that can be created by homecare providers, case managers, information systems staff using Web-based report writers;
  - ⇒ generation of a wide variety of monthly (or more frequent) products, including summaries of homecare aide hours worked and agency billing forms that can be verified based on the database.

The Homecare Aide Time Tracking System (HCATT) will also use existing interactive voice response technologies. City of Seattle Information Systems staff have successfully launched a municipal court fine payment and court date system and are in the process of developing a construction permit and fax-back system. Ninety percent of homecare clients have phones and homecare aides can easily be trained to use the phone as an input device. Reporting functions will use the same Web-based report writers utilized in the HCR to minimize staff training.

Outcomes

These five anticipated outcomes are discussed more fully in Section (6), along with specific, quantifiable measures used to gauge whether they have been achieved:

- Improved efficiencies in the process of case managers' referrals to homecare agencies
- Reduced costs due to staff time saved in key administrative processes
- Improved quality of service for clients, including faster initiation of service and more dependable service
- Increased accountability of contracted homecare workers and provider agencies
- Increased satisfaction with service quality and efficiency by consumers, case managers, and other providers

(2) SIGNIFICANCE

> "…professionals, organizations, and funders need to work together to build the infrastructure …to enable the aging-services community to take its place in the on-line world."[1]

The problem described in Section (1) is experienced throughout the nation though it is played out in our state and community in unique ways. Public agencies want to honor elderly and disabled consumers' preferences to remain at home, as independent as possible for as long as possible.

[1] Kathleen Kelly, "Building Aging Programs with Online Information Technology," *Generations*, Fall 1997, p. 18.

This is reflected in the fact that nationally Medicaid homecare costs increased from 1.2 percent of total long term care costs in 1982 to 19 percent in 1995.[2]

Personal care in the home is the most flexible, least expensive, and most-preferred option, yet it represents a "weak link." Rapid growth overall has strained the quality of the community-based long term care system. Policymakers want homecare expanded, yet are fearful it may not hold up under the burdens of poor or inconsistent quality and accessibility. Clients, families, case managers, and nurses faced each day with the shortcomings of the overtaxed system are deeply concerned about its quality of care.

The proposed use of telephonics and Web-based data systems is innovative: we will connect key front line staff together in a seamless system to overcome organizational barriers that often compromise quality of service to clients. With the current pressures for long term care systems to adopt managed care principles, it is critical that we incorporate the best of technology into our service delivery system so that all parts of the system reflect the whole.

The structure of that partnership between state social workers, Area Agencies on Aging, and community-based agencies varies from state to state and community to community, but includes the same elements everywhere. While there has been some progress in using automated, standardized assessment tools in Medicaid homecare systems across the U.S., the technology for tracking levels of service and provider performance is still very limited.

(3) PROJECT FEASIBILITY

Technical Approach

The HCR database will reside on a Microsoft SQLServer database server located on the City of Seattle network backbone (see Appendix 1). Case managers and homecare providers will use their Internet browsers to access HCR via the ADS Web server located next to the City of Seattle firewall. After considering dialup and WAN connections, we decided that using Internet as the access point would enable use of a common interface and means of access for all agencies at relatively low cost. We will work with community-based agencies to upgrade their computer and telecommunications equipment.

The HCR database will coexist with the computerized Comprehensive Assessment (CA) database used by all case managers working in the Washington state community-based long term care system. This is an Access database developed and maintained by the state's Information Systems staff. It resides on the case manager's desktop or laptop computer. After completing the CA, the case manager will click the Homecare Referral button to pull up the referral screen. Pertinent demographic and assessment information from the CA will populate the referral screen and will be written to the HCR database. Homecare agencies will be notified via e-mail when they have received a referral; they will fill out an HCR agency response form that includes homecare aide name and proposed start date. After the aide's first home visit, the agency will fill in the actual start date and the case manager will receive an e-mail with that date. Web-based reporting tools such as Business Objects WebIntelligence will be used to develop both ad hoc and regular reports needed by case managers, homecare agencies, and ADS contracts monitors.

[2] Robert Applebaum, et al., "Assuring Homecare Quality: A Case Study of State Strategies," *Generations*, Winter 1997-1998, p. 57.

One of the options considered for the development of the Homecare Aide Time Tracking (HCATT) system is the City of Seattle Interactive Voice Response (IVR) system from Periphonics Inc. The IVR system consists of a Sun Solaris Server connected to the City's Nortel PBX complex (see Appendix 2). The HCATT data would reside on the ADS Microsoft SQLServer database server, and Periphonics application development software called PeriProducer would be used to develop the HCATT telephone application. Web-based development tools such as PeriWeb could be used after implementation of the telephone application to add a Web browser interface to the existing IVR system without changing the IVR application. The Periphonics IVR computing equipment itself is designed to be scalable. The Periphonics IVR is an enterprise-wide system, handling the applications of a number of different City Departments. Currently a 48 port device, it is envisioned to grow to over 300 ports in the near future. As more seniors and people with disabilities have access to the Internet, a client satisfaction component could be incorporated with the HCATT for continuous improvement of homecare service quality.

Applicant qualifications

As the designated Area Agency on Aging, Aging and Disability Services administers an annual budget of $35 million and is uniquely positioned to play a leadership role in the implementation of cross-agency, cross-system technologies in the homecare arena. We have worked in partnership for over twenty years with the State of Washington State Unit on Aging and community-based agency providers to develop a network of services that promote choice and independence for elders and disabled adults. As a City of Seattle division, ADS benefits from the City's telecommunications infrastructure as well as the expertise of the Information Systems staff from both the Executive Services Department and the Department of Housing and Human Services (Appendix 3). The project team (see Appendix 4 for resumes) is made up of information systems staff from the City of Seattle Executive Services Department and the Department of Housing and Human Services, program planning and development staff from the DHHS Aging and Disabilities Services Division, and evaluation and tech support consultants:

The project advisory committee (see Appendix 5) will consist of elected officials, information systems and policy staff from Washington State Aging and Adult Services Administration; representatives from local high tech corporations, United Way, City and County leaders and consumers. The advisory committee will meet quarterly to guide development of the HCR and HCATT and receive status reports.

Budget, Implementation Schedule, and Timeline

ADS is proposing a three-year timeline to implement and evaluate both Phase I and II of the Homecare systems with an NTIA cost of $458,543 and a total cost of $918,300. Conversations with three past TIIAP grant recipients (1995 University of Alabama, 1995 New York State Office on Aging, and 1997 Kansas City Virtual Social Service Agency) confirmed our strategy of allowing the full three years to implement and evaluate the homecare initiative. All three emphasized the importance of allowing enough time to implement and budgeting enough resources. Recognizing the need for ongoing maintenance of the homecare systems after the grant period, we have included information systems and user support staff who will become permanent employees of ADS.

During the first year, agency telecommunications capability will be upgraded and the Homecare Referral system deployed (Appendix 6). During the second year, key players in the homecare system will jointly define the requirements for the Homecare Aide Time Tracking (HCATT) system, and the Interactive Voice Response system will be developed. During the third year, the HCATT database will be developed and deployed, users trained, and the system evaluated.

Sustainability

After the homecare referral and time tracking systems are in place, ADS will use both homecare service and case management portions of our Medicaid funding to sustain the systems. The ongoing costs include information systems staff, Internet service provider fees, equipment upgrades, and user training. We contract with a local tech support firm to provide hardware troubleshooting and support to community-based homecare and case management agencies.

(4) COMMUNITY INVOLVEMENT

Partnerships

ADS's organizational structure lends itself to working in partnership with the state's Aging and Adult Services Administration, United Way, King County Human Services, and a network of community-based agencies. We have worked together for 25 years to develop a service system that enables people to stay in their own homes as long as possible. To ensure the success of the proposed HCR and HCATT we have identified high tech corporate business partners who can provide in-kind and cash assistance.

Community Involvement

For the past two years, ADS has been facilitating monthly meetings with all 14 homecare agencies and the five case management agencies. The purpose has been to improve communication across systems, to discuss policy and rule changes, and to devise solutions to problems as they surface. The concept for both the HCR and HCATT emerged from these monthly discussions. In addition, ADS homecare specialists have resolved several client grievances regarding service timeliness and quality and time sheet accuracy.

Beginning in November 1997, 10 requirements definition sessions were held with ADS contract monitors, planners and managers, state staff, community-based case managers, their supervisors, homecare agency intake staff and directors, DHHS Information Systems staff, and area agency representatives from two neighboring counties (Snohomish and Pierce). We have conducted a hardware and connectivity survey of case management and homecare agencies to assess the cost of building the necessary infrastructure to deploy HCR and HCATT. HCR prototypes have been shown to all system players to ensure all needs are being adequately met.

Support for End Users

End users of the systems will be case managers and homecare agency intake staff, all of whom are currently using computer information systems as part of their daily work. HCATT will rely on trained homecare aides who will enter work hours via the client's phone. We have budgeted a full-time person to provider user support and training and are contracting with Northwest Computer Support to provide hardware and software troubleshooting and maintenance for community-based agencies. We will provide user documentation and regular training sessions to case managers and homecare agency staff. ADS case managers also have access to DHHS Help Desk staff deployed through the Executive Services Department Help Desk.

Privacy

The City of Seattle firewall will allow only valid users access to the databases. Case managers and homecare intake staff will have user ID's and passwords for both systems' databases. Any client information sent via the Internet will be encrypted using a product such as Verasign.

(5) REDUCING DISPARITIES

Description of disparities

The 4,500 chronically ill and disabled adults receiving Medicaid-funded homecare services in King County are one of the most vulnerable groups in our community. Their life options are severely constrained by limited income ($521 or less per month), lack of family support, limited English speaking ability (25% of clients), and need for assistance with life's essential functions: eating, toileting, bathing, transferring, ambulation, and self-medication. Although long term care represents 30% of state Medicaid costs, there is no comprehensive, well-functioning information system that supplies the data needed to define and track quality improvements in homecare.[3]

Without sound performance data and service report cards, Medicaid freedom-of-choice rules are insufficient to provide low-income consumers with informed choices. Those in need of homecare may go without or may inadvertently choose a provider with a poor track record. This "Hobson's Choice" can shorten their independence or place them at risk for more intensive and expensive care in hospitals and nursing homes.

Strategies for overcoming barriers to quality homecare services

Private pay homecare customers often receive better service because they can pay higher rates and are more likely to have family member advocates. Furthermore, homecare providers know that private pay customers can shop elsewhere if services are not of high quality. The HCR and HCATT systems aim to address disparities between services to people with higher incomes and those receiving Medicaid-funded services, by improving system efficiencies and developing performance measures that help assure consumers a better provider.

(6) EVALUATION, DOCUMENTATION, AND DISSEMINATION

Evaluation Plan

The evaluation design consists of two components: a process evaluation and an outcome evaluation. The first will focus on whether or not the project achieved its objectives:

- Implement a Web-based system for initiating and responding to homecare referrals;
- Build a performance profile database to improve homecare quality and accountability;
- Develop and implement a homecare aide time tracking system to improve consistency of homecare services and streamline agency payroll and billing.

The process evaluation will examine whether the project successfully completed the tasks set forth according to the project timeline (Appendix 6). This will be accomplished through regular project status meetings and review of work products. A technology assessment will focus on the appropriateness and ease of use of the technologies selected for this project. Technology

[3] Progress has been made on a Washington state database for nursing home care, but the alternative favored by most people—remaining at home—lags behind in terms of quality monitoring and data system development.

implementation strategies will be reviewed to assess whether the technologies were successfully integrated into the homecare system with minimal disruption of ongoing operations.

The outcome evaluation will assess the impact of the project on the goal of improving the quality and efficiency of the homecare system by answering the specific evaluation questions, measures, and data collection approaches (Appendix 7). The outcome evaluation will examine project impact on the following homecare system populations: clients, case managers, homecare agency supervisors, homecare workers, and referring agencies.

Data collection instruments will be developed and tested during the first phase of the project and then applied to gather baseline data. After project implementation, data will again be collected during the final phase of the project in order to provide information for analysis and comparison with the baseline data set. The firm of KleinDoerr, Consultants, will provider overall coordination of the evaluation and will work directly with ADS staff to refine the design, finalize the outcome measures, and develop data collection instruments, reporting forms, and analytic formats. They will also provide training and follow up support to those who will be collecting data and/or completing reporting forms. ADS staff will analyze data and KleinDoerr will interpret evaluation findings and prepare interim and final evaluation reports.

Documentation Plan

Documentation of the process will identify project start-up and implementation issues. Feedback will be used to strengthen the project design and address concerns in a timely fashion. These features will enhance the likelihood of project success and provide important information about implementation issues that may need to be considered by organizations interested in replicating the project. Project success or failure will be determined not just by technical issues, but by how well an organization is able to assimilate the changes required by applying new technologies.

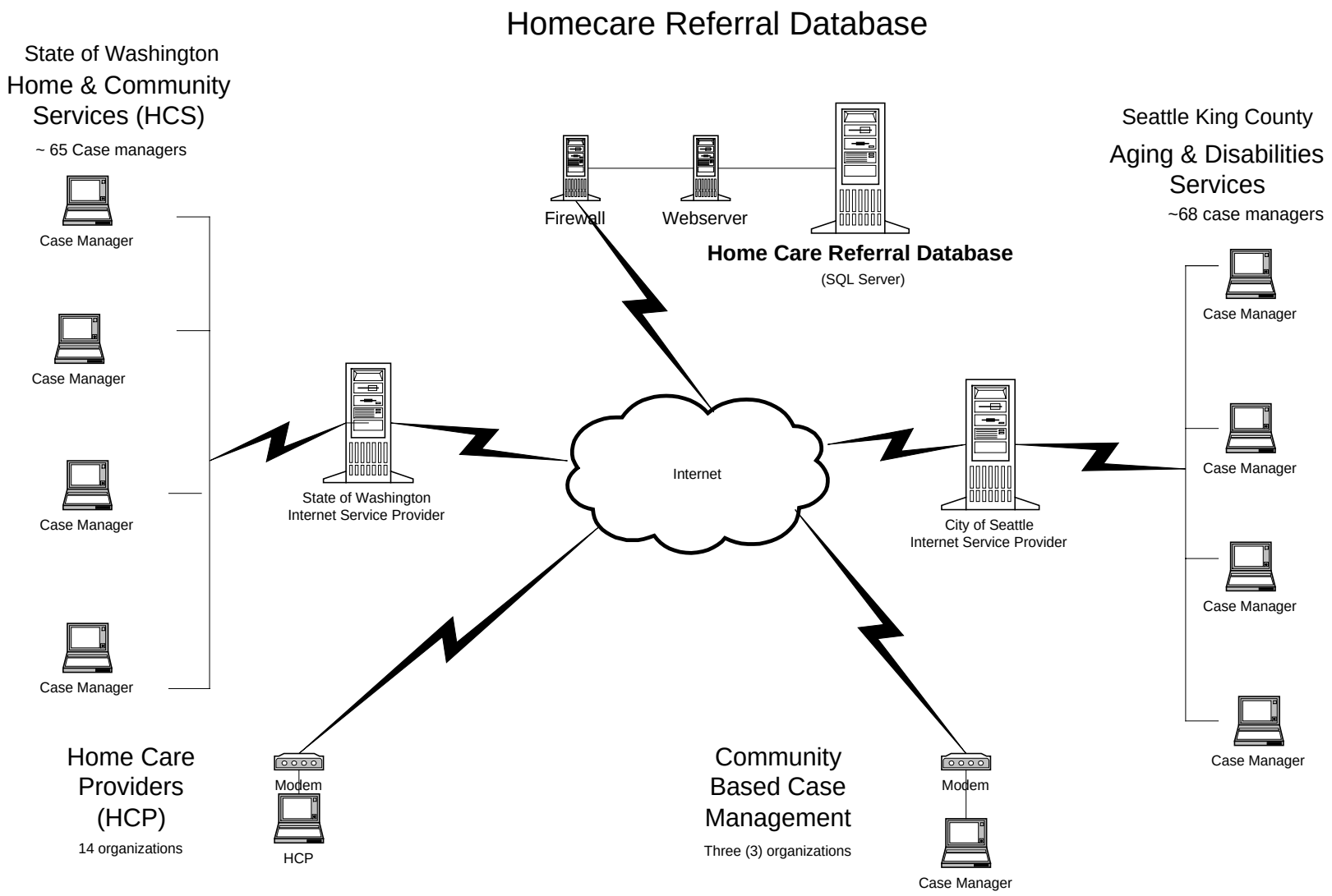
Information sources include informal feedback, troubleshooting, and more formal data analysis. Project status meetings will occur quarterly to review experience, issues and problems. Meeting minutes will be source documents for a paper that synthesizes project implementation issues and problems, discusses lessons learned, and recommends approaches to avoid or address these.

Dissemination Plan

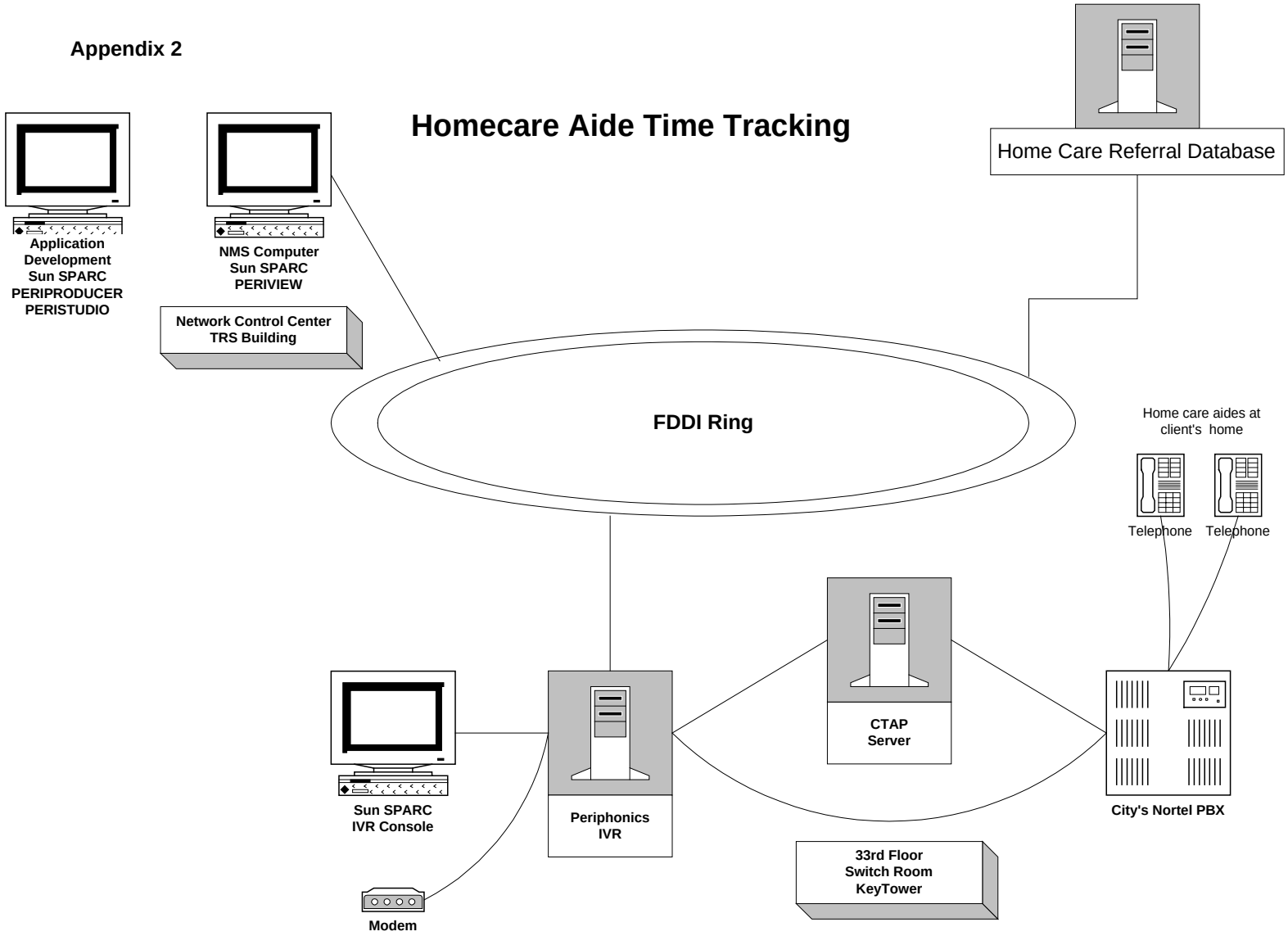
Results will be disseminated to Area Agencies on Aging, State Medicaid Agencies, homecare providers, and relevant national and state associations (e.g., the National Academy for State Health Policy, the National Association of Area Agencies on Aging, etc.) via:

- Wide distribution of an executive summary of the project report to state and national lists of major organizations in the fields of aging, homecare, and chronic care.
- Development of a project Web site including multimedia presentation of summary information about the project and results with capability to download demos and files.
- A minimum of one site visit, hosted by ADS, to provide those interested in replicating the project a chance to see how project technologies work in practice, including hands-on experience and observation of the technologies in use in the homecare system at all levels.

Appendix 1


Homecare Referral Database
State of Washington
Home & Community Services (HCS)
~ 65 Case managers
Case Manager
Case Manager
Case Manager
Case Manager
Home Care Providers (HCP)
14 organizations
Firewall
Webserver
Home Care Referral Database
(SQL Server)
Seattle King County
Aging & Disabilities Services
~68 case managers
Case Manager
Case Manager
Case Manager
Case Manager
State of Washington
Internet Service Provider
Internet
City of Seattle
Internet Service Provider
Modem
HCP
Community Based Case Management
Three (3) organizations
Modem
Case Manager

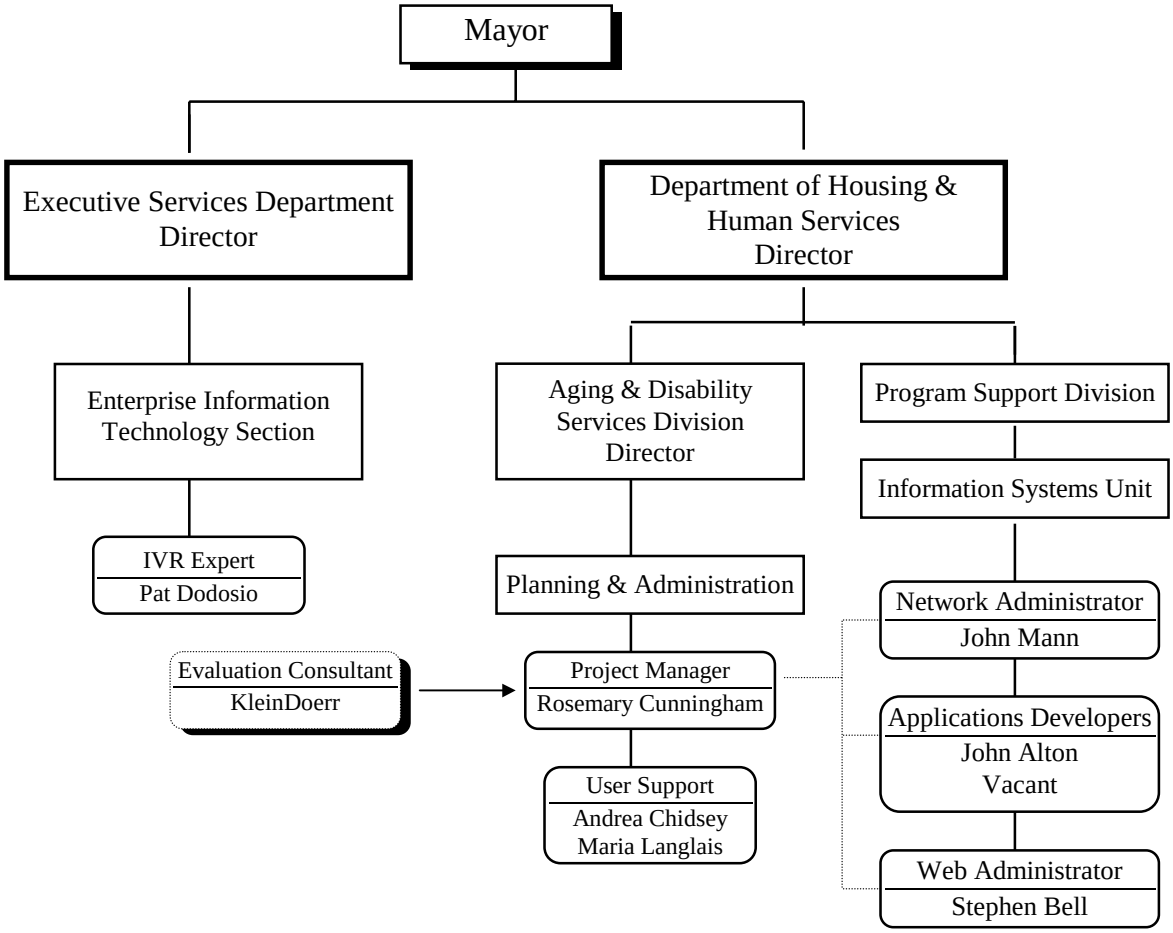
Appendix 2


Homecare Aide Time Tracking
Home Care Referral Database
Application Development Sun SPARC PERIPRODUCER PERISTUDIO
NMS Computer Sun SPARC PERIVIEW
Network Control Center TRS Building
FDDI Ring
Home care aides at client's home
Telephone
Telephone
CTAP Server
Sun SPARC IVR Console
Periphonics IVR
City's Nortel PBX
33rd Floor Switch Room KeyTower
Modem

Appendix 3. HOMECARE PROJECT TEAM

ORGANIZATIONAL STRUCTURE

CITY OF SEATTLE



Appendix 4. Project Team Qualifications

The project team for the Homecare Referral and Time Tracking System:

1) Rosemary Cunningham, Project Manager. Thirteen years' experience managing projects including interagency data management and database application development for case management and homecare; program evaluations in case management and nutrition.

2) John Alton, Systems Analyst. Ten years' experience data analysis, design, implementation, and maintenance in the area of case management and respite care.

3) John Mann, Network Manager. Ten years' data analysis, design, implementation in the areas of homecare, nutrition services, and coordinated intake; local area and wide area network management; e-mail administration.

4) Stephen Bell, Web Administrator. Fifteen years' experience programming, database development, and online systems design; administers DHHS intranet; developed and administered electronic bulletin board system for 100,000 users.

5) Pat Dadosio, Interactive Voice Response (IVR) Implementation Project Manager. B.S. Physics, 21 years' experience application design, analysis, statistical and scientific programmingand. Projects employing the Periphonics IVR system include: a Municipal Court application consisting of online ticket paying and the scheduling of Court hearings; an entreprise-wide fax-on-demand system for Seattle Center and the City's Contracting Section.; Dept of Construction and Land Use application for scheduling building inspections an enterprise-wide outdialing application to contact City's regarding routine City operations or interruptions of service.

6) KleinDoerr Consultants, Evaluation consultants. Twenty-five years' experience in health and long term care; strategic planning, systems design, program and policy development, program evaluation; emphasize strategies and service delivery approaches to managing care across traditional boundaries.

7) John Cahall, Homecare Contract Specialist. Seventeen years'' experience in the field of aging; homecare worker, supervisor, grants and contracts manager; designs outcome goals for homecare, monitors agency performance, pays invoices.

8) Marietta Bobba, Case Management/Homecare Planner. Sixteen years' experience directing agencies providing community-based homecare and services for chronically mentally ill clients; directed homecare agency with 200 workers

9) Andrea Chidsey, User Support, Training and Process Improvement. Three years' experience supporting and training case managers, improving paperwork and data flow processes across systems, and writing user documentation. Assisted in two year process of deployment of the Comprehensive Assessment database with 50 case managers in five offices.

10) Maria Langlais, Report Writer/Data Analyst. Five years' experience conducting requirements analysis, user support, training, technical needs assessments; deployed nutrition database to, 60 meal sites; administers user accounts for ADS agency provider access to Public Access Network.

11) Data and process modeling consultants. Either Executive Services staff or consultants from the City of Seattle's blanket contractors list will be hired to lead the requirements analysis for HCATT

Appendix 5. Homecare Project Advisory Committee

King County and City of Seattle Leadership
Barbara Gletne, Director, Department of Community and Human Services, King County
Venerria Knox, Director, Department of Housing and Human Services, City of Seattle

Elected Officials
Representative Phil Dyer, Chair, Health and Long Term Care Committee, Washington State House of Representatives, invited.
Councilmember Tina Podlodowski, Seattle City Council, invited.

Citizen Volunteer
Nancy Holloran, Health Care Task Force, Seattle-King County Advisory Council on Aging and Disability Services

State of Washington, Aging and Adult Services Administration
Rick Bacon, Chief, State Unit on Aging
Rhett Russell, Chief of Technology

Corporate / Foundation Representatives
Jaime Garcia, Vice President, Planning and Distribution, United Way of King County
Local software corporate giving officer(s)

University of Washington
Asuman Kiyak, PhD, Director, Institute on Aging, invited.

Appendix 6. HCR and HCATT Timeline/Work Program

Objective	Tasks/Action Steps	Who?	Timeframe
A. Provide 5 case management agencies and 14 homecare agencies access to ADS Web Server via the Internet	1. Upgrade provider computer and telecommunications equipment 2. Design Web server; locate on City of Seattle backbone 3. Test connectivity	Network& Web Administrator Trainer/User Support	Oct-Nov 1998
B. Develop and implement a Web-based system for initiating and responding to referrals for homecare services. (HCR)	4. Code and test HCR database 5. Develop ad hoc and performance reports. Develop user training plan with input from users 6. Deploy HCR in phases with groups of 10 case managers from each agency 7. Develop user training plan and write user documentation 8. Train users	Application developers Trainer Web Administrator Trainer	Dec 1998 - Feb 1999 Mar-May 1999
C. Develop and implement a homecare aide time tracking (HCATT) system that is initiated and concluded telephonically each time a worker arrives at a client's home.	9. Develop requirements document for HCATT through a joint application development process 10. Develop Interactive Voice Response application 11. Develop SQLServer application; integrate with HCR application 12. Develop reports 13. Develop user training plan and write user documentation 14. Install and test applications 15. Train users	Data modeling consultants Appl developers Homecare staff Case managers User support Program specialists IVR expert	Jun-Sep 1999 Oct-Mar 2000 Mar-May 2000
D. Conduct a process evaluation to assess whether project work program tasks successfully completed in a timely fashion.	16. Establish a system to monitor project implementation 17. Assess the impact of project technologies with respect to ease of use and appropriateness for the homecare system. 18. Prepare a brief report summarizing process evaluation	Project staff, with support from KleinDoerr	Oct 1998 Quarterly; Aug 1999, 2000, 2001

Objective	Tasks/Action Steps	Who?	Timeframe
E. Conduct an outcome evaluation to assess project impact on the quality and efficiency of the homecare system.	19. Refine outcome measures to be used to assess project impact 20. Develop data collection methods and instruments 21. Gather data for outcome evaluation: baseline and milestones 22. Analyze project data 23. Prepare interim and final evaluation reports	KleinDoerr Project staff	Nov-Dec 98 Jan-Apr 99 Sep-Apr 01 Dec 1998 Apr, Jun 99, Apr, Jun 01
F. Document project implementation to identify information and issues to assist those interested in project replication.	24. Collect source documents, including minutes of project status meetings, ongoing project reports, survey results, and other materials as appropriate 25. Prepare a brief paper that summarizes issues and problems encountered during project implementation, discusses lessons learned, and makes recommendations to those considering replicating the project	Project staff KleinDoerr	Ongoing Mar 1999, 2000, 2001
G. Disseminate project results.	26. Distribute evaluation report, develop mailing list 27. Develop project web site including concept, content, graphics, and project materials; market web-site 28. Host project site visit(s); develop topics and sites, arrange lodging and transportation; advertise site visit opportunity 29. Research and implement other approaches to dissemination of project results a. Contact National Chronic Care Consortium and other organizations to identify potential dissemination approaches b. Prepare and distribute project materials appropriate to each	Project staff, KleinDoerr, DHHS Web Administrator, User Support	Apr-Jun 2001 Apr-Jul 2001 Jul-Sep 2001

Appendix 7. Outcome Evaluation

Goal: To improve the quality and efficiency of the King County, Washington homecare system through the use of homecare data systems that are built on existing telecommunications infrastructure

Outcomes	Evaluation Questions	Measures/Approaches
1. Improved efficiency of homecare referrals	Is the referral process faster?	• Decline in the number of days/hours between client assessment and referral acceptance (Approach: track date/time of referrals and acceptances for a sample time period, pre- and post-) • Reduced average case manager time for completing a referral (Approach: time study, pre- and post-) • Reduced average homecare agency time needed to process and respond to a referral (Approach: time study, pre- and post-)
2. Reduced administrative costs	Does the process of making referrals cost less than before project implementation? Are agency reporting and invoicing costs reduced? Does it cost less to monitor agency performance? Is the project's investment in technology and training justified by the resulting cost savings?	• Reduction in cost/referral for ADS case management program (Approach: pre-, post- time study) • Reduction in the amount of homecare provider staff time needed to process and respond to a referral (Approach: pre-, post- time study) • Reduction in homecare provider costs to prepare invoices (Approach: time study, pre- and post-) • Reduction in ADS costs of processing billings (Approach: pre-, post- time study) • Reduction in ADS costs to track, analyze, and compare homecare provider performance (Approach: pre-, post- time study) • Comparison of project costs with future value of expected cost savings
3. Improved quality of service	Do clients receive initial services more quickly?	• Decline in the amount of time between client assessment and initiation of homecare services (Approach: sample client records for baseline, utilize database information for post-implementation)

Outcomes	Evaluation Questions	Measures/Approaches
	Are more clients receiving authorized service levels than before? Are services more consistent or dependable than before?	• Percentage of clients who receive the level of services authorized, compared to baseline (Approach: sample client records for baseline, utilize database information for post-implementation) • Reduced homecare worker turnover (Approach: audit provider personnel records, pre- and post- or use database) • Reduced number of worker "no-shows" (Approach: sample audit of actual dates of service as compared with case plans)
4. Increased accountability of homecare system	Is timely, accurate, easy-to-understand information on agency performance available to case managers? Do case managers and ADS staff use performance profile information to make decisions?	• Reduced time for case managers to receive notification when client service hours fall below authorized levels (Approach: sample client records for baseline, utilize database information for post-implementation) • Improved accessibility of accurate and easily usable data on homecare provider performance (Approach: pre-, post- survey of case managers) • Changes in pre- and post-implementation market share of high-performing providers (Approach: calculate percentage market share by providers by # of complaints, ratio of delivered to authorized hours)
5. Increased consumer and provider satisfaction	Has consumer satisfaction with homecare services increased overall? Is this increase likely attributable to the project? Has satisfaction with homecare contracting and delivery system increased?	• Increase in percentage of satisfied or highly-satisfied homecare clients (Approach: client survey at baseline and end of project) • Increase in percentage of homecare providers, case managers, and ADS who are satisfied or highly satisfied (Approach: stakeholder survey at baseline and end of project)